

Claims

1. Speed measuring system comprising at least one stationary speed sensor (4) for detecting a speed of a measuring body (1) rotating relative to said speed sensor (4) wherein said measuring body (1) is provided on its periphery with electric or magnetic discontinuities and said speed sensor (4), disposed at a defined distance from said measuring body (1), reacts to discontinuities situated in direction of movement of said measuring body (1) when said measuring body (1) is moved past on said speed sensor (4), characterized in that said speed measuring system in addition has a separate distance sensor (5) for determining an actual distance (LS) between speed sensor (4) and measuring body (1) or/and an actual change of distance between said speed sensor (4) and said measuring body (1) and that the speed of said measuring body (1) is formed in an evaluation device of the speed measuring system from an actual output signal of said speed sensor (4) depending on an actual output signal of said distance sensor (5).

2. Speed measuring system according to claim 1, characterized in that release thresholds ( $S_o$ ,  $S_u$ ) of said speed sensor (4) specific to the sensor and/or to the measuring body are respectively function of the actual distance (LS) between speed sensor (4) and measuring body (1) and a function of the actual change of distance between speed sensor (4) and measuring body (1), the evaluation device of the speed measuring system issuing a speed unequal to a value "zero" as actual speed of said measuring body (1) only when an actual speed signal amplitude of said speed sensor (4) is greater than an upper release threshold ( $S_o$ ) or smaller than a lower release threshold ( $S_u$ ).

3. Speed measuring system according to claim 1, characterized in that a maximum speed signal amplitude ( $A_{max}$ ) specific to the sensor and a minimum speed signal amplitude ( $A_{min}$ ) specific to the measuring body of said speed sensor (4) are respectively a function of the actual distance between speed sensor (4) and measuring body (1), and a function of the actual change of distance between speed sensor (4) and measuring body (12), said evaluation device of the speed measuring system issuing as actual speed of said measuring body (1)

a speed unequal to the value "zero" only when an actual speed signal amplitude of said speed sensor (4) is smaller by a defined differential amount or a defined percent deviation than the maximum speed signal amplitude (A\_max) or is larger by a defined differential amount than the minimum speed signal amplitude (A\_min).

4. Speed measuring system according to claim 1, 2 or 3, characterized in that the upper and lower release thresholds (S\_o, S\_u) and the maximum and minimum speed signal amplitudes (A\_max, A\_min) are enlarged from the amount when the air gap becomes smaller.

5. Speed measuring system according to any one of claims 1 to 4, characterized in that said distance sensor (5) scans, especially without contact, a contour of the same surface nature of said measuring body (1) as distance measuring surface (3).

6. Speed measuring system according to any one of claims 1 to 5, characterized in that said speed sensor (4) and distance sensor (5) are situated in a common housing (6).

7. Speed measuring device according to any one of claims 1 to 6, characterized in that the speed measuring system has two speed sensors disposed immediately adjacent which independently of each other detect the electric or magnetic discontinuities of said measuring body, said evaluation device taking into account a phase offset between both speed sensor signals so that the speed measuring system delivers as output values the speed and/or a direction of rotation and/or an angularity of said measuring body.

8. Speed measuring system according to claim 7, characterized in that both speed sensors and the distance sensor are situated in a common housing.

9. Speed measuring system according to any one of claims 2 to 8, characterized in that the upper and lower release thresholds (S\_o, S\_u) and the maximum and minimum speed amplitudes (A\_max, A\_min) are stored as specific characteristic lines in the evaluation device of the speed measuring system.

10. Speed measuring system according to claim 9, characterized in that the sensor-specific characteristic lines can be adapted.

11. Speed measuring device according to any one of claims 1 to 10, characterized in that said evaluation device of the speed measuring system is integrated in the sensor housing (6).
12. Speed measuring system according to any one of claims 1 to 10, characterized in that said evaluation device of the speed measuring system is situated in a separate control unit.
13. Speed measuring device according to any one of claims 1 to 12, characterized in that said distance sensor (5) works according to inductive, or magnetic-resistive, or optical, or Hall measuring principle.
14. Speed measuring system according to any one of claims 1 to 13, characterized in that said speed sensor (4) works according to a measuring principle in which a speed signal amplitude (A) depends on the distance (LS) between speed sensor (4) and measuring body (1).
15. Speed measuring system according to claim 14, characterized in that said speed sensor (4) works according to inductive, or magnetic-resistive, or Hall measuring principle.